REMARKS

Claims 1-23 are pending in the patent application. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claims 1, 11-12, 16, and 23 were rejected under 35 U.S.C. §102(b) based on Engelsberg *et al.* (U.S. Pat. No. 5,958,268) (Engelsberg). The rejection is respectfully traversed.

Claim 1 is patentable over Engelsberg at least because this claim recites a lithographic projection apparatus comprising, *inter alia*, a radiation system to provide a projection beam of radiation; a support structure constructed and arranged to support a patterning structure, the patterning structure used to pattern the projection beam according to a desired pattern; and a radiation source independent of the radiation system constructed and arranged to supply radiation capable of removing contaminant particles adhered to an optical component without substantially heating said optical component. Engelsberg does not teach or suggest an apparatus including at least these features. Therefore, Engelsberg does not teach or suggest each and every feature of claim 1 and, as a result, cannot anticipate this claim.

In contrast to the apparatus of claim 1, Engelsberg discloses an apparatus and a method for selectively removing undesired material from the surface of a substrate. (see Abstract) Engelsberg explicitly discloses that the apparatus includes a radiation system 400 consisting of a source 410, configured to supply radiation 11, and optics 450. (See col. 6, lines 19-26, where Engelsberg clearly states that "[The] irradiation system 400 includes a source 410 of radiation 11", emphasis added). Therefore, in Engelsberg, the source 410 is clearly part of the radiation system 400 and, as a result, cannot be independent of it. Therefore, as Engelsberg fails to teach or suggest two independent elements, *i.e.* a radiation system configured to provide a beam of radiation and a source of radiation independent of the radiation system, it is respectfully submitted that Engelsberg does not teach each and every element recited by claim 1. In addition, it is respectfully submitted that Engelsberg is silent about a support structure constructed and arranged to support a patterning structure.

Claim 23 is patentable over Engelsberg by virtue of its dependency from claim 1 and for the additional feature recited therein.

Claim 11 is patentable over Engelsberg at least because this claim recites a device manufacturing method comprising, projecting a patterned beam of radiation onto a target portion of a layer of radiation-sensitive material on a substrate, and removing contaminant particles, which are adhered to an optical component through which the beam of radiation

passes, by irradiation with a radiation source independent of a source of the patterned beam, said radiation source providing a radiation capable of removing said contaminant particles without substantially heating said optical component. Engelsberg does not teach or suggest a method including at least this feature. Therefore, Engelsberg does not teach or suggest each and every feature of claim 11 and, as a result, cannot anticipate this claim.

In contrast to the method recited by claim 11, Engelsberg teaches removing contaminant particles with the source 410. However, Engelsberg fails to teach or suggest a step of projecting a patterned beam of radiation onto a target portion of a layer of radiation-sensitive material on a substrate with a source that is independent of a source used to remove contaminant particles, as recited in claim 11. As mentioned in the discussion related to claim 1, Engelsberg only discloses a unique source 410, which is configured to remove particles, but fails to teach or suggest a first source configured to remove contamination and a second source, independent of the first source, which is configured to supply a beam of radiation.

Claims 12 and 16 are patentable over Engelsberg by virtue of their dependency from claim 11 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 11-12, 16, and 23 under 35 U.S.C. §102(b) based on Engelsberg are respectfully requested.

Claims 2-10, 13-15, and 17-22 were rejected under 35 U.S.C. §103(a) based on Engelsberg in view of Norton *et al.* (U.S. Pat. No. 5,486,701) (Norton). The rejection is respectfully traversed.

Claims 2-10, and 17-22 depend from claim 1 and are patentable over Engelsberg for at least the same reasons given above related to claim 1. Namely, claims 2-10, and 17-22 are patentable over Engelsberg at least because they recite a lithographic projection apparatus comprising, *inter alia*, a radiation system to provide a projection beam of radiation; a support structure constructed and arranged to support a patterning structure, the patterning structure used to pattern the projection beam according to a desired pattern; and a radiation source independent of the radiation system constructed and arranged to supply radiation capable of removing contaminant particles adhered to an optical component without substantially heating said optical component. As mentioned previously, Engelsberg does not teach or suggest an apparatus including at least these features.

It is respectfully submitted that Norton fails to overcome these deficiencies. In contrast to the apparatus recited by claims 2-10, and 17-22, Norton discloses an apparatus for performing reflectance measurements of a sample using radiation having UV frequency

components and visible frequency components. (See Abstract). Norton specifically discloses an illumination subsystem including a unique lamp, which emits a radiation beam comprising visible and/or UV radiation. (See col. 1, lines 63-67). However, Norton is silent about a support structure constructed and arranged to support a patterning structure or the existence of two independent elements, *i.e.*, a radiation system configured to provide a beam of radiation and a source of radiation independent of the radiation system. Therefore, as none of the arts of record teach or suggest all of the features recited by claims 2-10, and 17-22, the combination of Engelsberg and Norton cannot result in the invention of claims 2-10 and 17-22.

Claims 13-15 depend from claim 11 and are patentable over Engelsberg for the same reasons given above related to claim 11. Namely, claims 13-15 are patentable over Engelsberg at least because these claims recite a device manufacturing method comprising, projecting a patterned beam of radiation onto a target portion of a layer of radiation-sensitive material on a substrate, and removing contaminant particles, which are adhered to an optical component through which the beam of radiation passes, by irradiation with a radiation source independent of a source of the patterned beam, said radiation source providing a radiation capable of removing said contaminant particles without substantially heating said optical component. As mentioned previously, Engelsberg does not teach or suggest a method including at least these features.

It is respectfully submitted that Norton fails to overcome these deficiencies. In particular, it is respectfully submitted that Norton fails to teach or suggest a step of projecting a patterned beam of radiation with a source that is independent of a source used to remove contaminant particles, as recited in claims 13-15. As mentioned previously, Norton only discloses an illumination subsystem including a unique lamp, which emits a radiation beam comprising visible and/or UV radiation. (See col. 1, lines 63-67). Therefore, as none of the arts of record teach or suggest all of the features recited in claims 13-15, the combination of Engelsberg and Norton cannot result in the invention of claims 13-15.

Furthermore, in order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings of the references. MPEP 2142 It is respectfully submitted that such a motivation or suggestion does not exist and that the Office Action fails to identify where in the references or in the knowledge generally available to one of ordinary skill in the art such a motivation or suggestion is provided. In that regard, Applicant notes that it would not be

reasonable for one of ordinary skill in the art to combine a reference that teaches a destructive method (removal of particles on the substrate) with a reference that teaches a non-destructive method (measurements of reflectance of the substrate).

Accordingly, reconsideration and withdrawal of the rejection of claims 2-10, 13-15, and 17-22 under 35 U.S.C. §103(a) based on Engeslberg in view of Norton are respectfully requested.

Applicant has addressed all the Examiner's rejections and respectfully submits that the application is in condition for allowance. A notice to the effect is earnestly solicited.

If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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